

IN THE CLAIMS

Please amend the claims as follows:

Claim 1 (Currently Amended): An electron source ~~characterized in that~~ comprising a single crystal needle of tungsten or molybdenum and as a covering layer on a portion of said needle, a barium-supplying source consisting of comprising a complex oxide comprising barium oxide, and an oxide of metal other than barium, is provided at a portion of a single crystal needle of tungsten or molybdenum wherein the complex oxide is at least one complex oxide selected from the group consisting of BaAl₂O₄, BaAl₁₂O₁₉, Ba₃Sc₄O₉, and BaSc₂O₄.

Claims 2-4 (Canceled).

Claim 5 (Original): The electron source according to Claim 1, wherein the single crystal needle of tungsten or molybdenum has a <100> orientation and has a flat surface consisting of a (100) crystallographic plane at the apex of the needle.

Claim 6 (Original): The electron source according Claim 1, wherein the single crystal needle of tungsten or molybdenum has a <211> orientation and has a flat surface consisting of a (211) crystallographic plane at the apex of the needle.

Claim 7 (Original): The electron source according to Claim 1, wherein when it is operated at an angular intensity of 4.0 mA/sr, the total emission current is at most 350 μ A.

Claim 8 (Currently Amended): An apparatus comprising the ~~[[The]]~~ electron source according to Claim 1, which apparatus ~~is an electron source to be used for~~ a scanning electron

microscope, a transmission electron microscope, a surface analyzer, a semiconductor wafer inspection apparatus or an electron beam lithography machine.

Claim 9 (Currently Amended): A method ~~for using an electron source, characterized in that an electron source provided with a barium-supplying source consisting of a complex oxide comprising barium oxide and an oxide of metal other than barium at a portion of a single crystal needle of tungsten or molybdenum, is used~~ comprising using the electron source according to claim 1 at a needle temperature of from 1000 K to 1300 K.

Claim 10 (Currently Amended): A method for producing an electron source comprising heating the electron source according to claim 1, ~~characterized in that an electron source provided with a barium-supplying source consisting of a complex oxide comprising barium oxide and an oxide of metal other than barium at a portion of a single crystal needle of tungsten or molybdenum, is heated~~ at from 1000 K to 1700 K under application of a positive electric potential.

Claim 11 (New): The electron source according to Claim 1, wherein the complex oxide is at least BaAl_2O_4 .

Claim 12 (New): The electron source according to Claim 1, wherein the complex oxide is at least $\text{BaAl}_{12}\text{O}_{19}$.

Claim 13 (New): The electron source according to Claim 1, wherein the complex oxide is at least $\text{Ba}_3\text{Sc}_4\text{O}_9$.

Claim 14 (New): The electron source according to Claim 1, wherein the complex oxide is at least BaSc_2O_4 .

Claim 15 (New): The apparatus according to claim 8, which is a scanning electron microscope.

Claim 16 (New): The apparatus according to claim 8, which is a transmission electron microscope.

Claim 17 (New): The apparatus according to claim 8, which is a surface analyzer.

Claim 18 (New): The apparatus according to claim 8, which is a semiconductor wafer inspection apparatus.

Claim 19 (New): The apparatus according to claim 8, which is an electron beam lithography machine.